

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-10. (canceled)

11. (currently amended) ~~The control method as claimed in claim 10,~~ An air supply control method for a turbocharged engine having an intake manifold (20) downstream of a compressor of a turbocharger (14) and an exhaust manifold (22) upstream of a turbine of the turbocharger (14), comprising:

determining a mass air flow supplied to the engine and/or a pressure in the intake manifold (20), together with a temperature in the exhaust manifold, wherein a pressure in the exhaust manifold (22) is determined as a function of the pressure in the intake manifold (20), an engine speed, and temperatures in cylinders (4) and in the exhaust manifold (22),

wherein a correction factor dependent on the ambient surrounding pressure is provided, and

wherein the pressure in the exhaust manifold (22) P_{exh} is calculated by a formula:

$$P_{exh} = [A(T_c) * MAP - B(N, AMP, T_{exh})] / C(T_{exh}),$$

where A, B and C are predetermined functions, T_c is the temperature in the cylinders, MAP is the pressure in the intake

manifold, N is the engine speed, AMP is the ambient pressure and T_{exh} is the temperature of burnt gases in the exhaust manifold.

12. (currently amended) The control method as claimed in claim ~~[[9]]~~ 11, wherein the air flow supplied to the engine is regulated by a throttle valve (18), and in that, when this throttle valve (18) is near its closed position within predetermined limits during a specified time interval, an ambient external pressure AMP is calculated on a basis of the exhaust pressure as a function of the engine speed.

13-14. (canceled)

15. (currently amended) ~~The control method as claimed in claim 14,~~ An air supply control method for a turbocharged engine having an intake manifold (20) downstream of a compressor of a turbocharger (14) and an exhaust manifold (22) upstream of a turbine of the turbocharger (14), comprising:

determining a mass air flow supplied to an engine and/or a pressure in an intake manifold (20), together with a temperature in the exhaust manifold (22), wherein a pressure in the exhaust manifold (22) is measured by a sensor, and in that the pressure in the intake manifold (20) is determined on the basis of an exhaust pressure measured as a function of an engine speed and

temperatures in the cylinders (4) and in the exhaust manifold (22),

wherein a correction factor dependent on the ambient surrounding pressure is provided, and

wherein the pressure in the intake manifold MAP is calculated by a formula:

$$\text{MAP} = [\text{F}(\text{N}, \text{T}_{\text{exh}}) * \text{P}_{\text{exh}} + \text{G}(\text{N}, \text{AMP}, \text{T}_{\text{exh}})] / [\text{H}(\text{N}, \text{T}_{\text{c}})],$$

where F, G and H are predetermined functions, T_{c} is the temperature in the cylinders, P_{exh} is the pressure in the exhaust manifold, N is the engine speed, AMP is the ambient pressure and T_{exh} is the temperature of burnt gases in the exhaust manifold.

16. (currently amended) The control method as claimed in claim [[9]] 11, wherein the temperature in the exhaust manifold (22) is determined on the basis of modeling.

17. (currently amended) The control method as claimed in claim [[10]] 11, wherein the air flow supplied to the engine is regulated by a throttle valve (18), and in that, when this throttle valve (18) is near its closed position within predetermined limits during a specified time interval, an ambient external pressure AMP is calculated on a basis of the exhaust pressure as a function of the engine speed.

18. (previously presented) The control method as claimed in claim 11, wherein the air flow supplied to the engine is regulated by a throttle valve (18), and in that, when this throttle valve (18) is near its closed position within predetermined limits during a specified time interval, the ambient external pressure AMP is calculated on a basis of the exhaust pressure as a function of the engine speed.

19. (currently amended) The control method as claimed in claim [[9]] 11, wherein an air intake (10) and a mass air flow meter (12) are upstream of the turbocharger (14).

20. (currently amended) The control method as claimed in claim [[9]] 11, wherein an intercooler (16) is downstream of the turbocharger (14).

21. (currently amended) The control method as claimed in claim [[13]] 15, wherein an air intake (10) and a mass air flow meter (12) are upstream of the turbocharger (14).

22. (currently amended) The control method as claimed in claim [[13]] 15, wherein an intercooler (16) is downstream of the turbocharger (14).

23. (currently amended) The control method as claimed in claim [[9]] 11, wherein the air flow supplied to the engine is regulated by a mechanically or electrically controlled throttle valve (18), and when the throttle valve (18) is electrically controlled, an angle of opening of the throttle valve and opening of a turbocharger discharge valve (14) are controlled simultaneously.

24. (currently amended) The control method as claimed in claim [[13]] 15, wherein the air flow supplied to the engine is regulated by a mechanically or electrically controlled throttle valve (18), and when the throttle valve (18) is electrically controlled, an angle of opening of the throttle valve and opening of a turbocharger discharge valve (14) are controlled simultaneously.

25. (currently amended) The control method as claimed in claim [[9]] 11, wherein a correlation between a measured value and the determined pressure in the exhaust manifold (22) is greater than 0.9.

26. (currently amended) The control method as claimed in claim [[13]] 15, wherein a correlation between a measured value and the determined pressure in the intake manifold (20) is greater than 0.9.